

Appl. No.: 10/659,525  
Amdt. Dated: May 7, 2007  
Reply to Office Action of: March 7, 2007

### REMARKS/ARGUMENTS

#### **1. Final Office Action**

Applicants respectfully submit that the finality of the Office Action of March 3, 2007 should be withdrawn because of the Examiner's citation of a new combination of art directed to the Claim 1, the only remaining independent claim pending in the case after the amendments submitted herein.

#### **2. Claims**

Claims 1-21 are pending in the application. Claims 12, 13, 20 and 21 have been cancelled herein. Claims 1-11 and 14-19 remain open to prosecution.

#### **6. § 103 Rejections**

##### **A. Rejection of cancelled claims**

Applicants submit that all rejections directed to claims 12, 13, 20 and 21 are moot because of the cancellation of these claims herein. The specific rejection of these claims has not been shown herein because of the mootness of the rejection.

##### **B. Rejection of claims 1, 4, 5 over Clasen in view of Hasenzahl and Ramsey**

The rejection regarding claim 12 is moot in view of the cancellation of this claim herein. The claims remaining under this rejection are claims 1, 4 and 5.

The Examiner has rejected claims 1, 4, and 5 under 35 U.S.C. § 103(a) as being unpatentable for obviousness over Clasen, et al (2002/0026810) in view of Hasenzahl, et al (WO01/72419 as represented by US 6,849,570) and Ramsay (4,389,385) for reasons set forth in the office Action. Specifically, the Examiner states:

"Clasen et al. disclose a method of providing an aqueous sol including a solid phase of titania-containing powder, forming the sol into a titania-containing silica shaped gel having a homogeneous distribution of titania ([0031], [0033], [0034], and [0047]), drying the gel ([0048]), and heating to form a glass body ([0041]). However, Clasen fails to teach how the powder is formed. Hasenzahl et al teach utilizing titania containing silica powder, that has been prepared by flame hydrolysis of a mixture of organometallic silica and titania precursors, in an aqueous sol (col 3, lines 32-37)> It would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that flame hydrolysis of the silica and titania precursors would result in mixing of the silica and titania on an atomic scale. Furthermore, Ramsey also

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teaches the using of silica and titania powders in the preparation of sols, wherein the powders were obtained by flame hydrolysis. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the titania containing silica powder prepared by flame hydrolysis and suggested by Ramsey and Hasenzahl et al. in the preparation of the sols of Clasen et al because flame hydrolysis produces powders in a fine particle size that is suitable for dispersing into a liquid to form a sol, as taught by Ramsey"

Applicants traverse the rejection.

Clasen teaches the used on a method that involves the use of a primary component *and* a secondary component to make a silica-titania glass. Applicants use only a single primary component. Both components are required by Clasen as indicated, for example, in Paragraph [0034] and Claim 1. Clasen's primary component is one or a combination of the powders described above (re Paragraph [0034]). The secondary component is a titanium-containing component such as a titanium alkoxide or a titanium-containing salt as described in Paragraph [0043]. This secondary component is neither required nor claimed by the present invention as claimed by claim 1. Hasenzahl and Ramsey may describe the preparation of a silica-titania powder, but when these citations are combined with Clasen the resulting method still requires the use of Clasen's secondary component.

Applicant's invention as claimed in claim 1 claims the use of a single component, an amorphous silica-titania powder. The use of a secondary component, as required by Clasen, is more complex than the use of only a silica-titania powder to prepare a sol and further can lead to inhomogeneities because the liquid of the sol will migrate during drying. As a result the concentration of the liquid can be different at different localized levels depending on the pore structure of the powder. Consequently, when the sol is completely dries there will be inhomogeneities on a scale that is undesirable for application such as EUVL applications. Diffusion of titania in a silica-titania glass is slow and is will not result in a product that has the micron scale homogeneity needed for EUVL applications.

Therefore, in view of the facts and arguments presented above, applicants submit that claim 1 is patentable over the cited combinations of art, and applicants further submit that claims 4 and 5 are patentable over the cited art for depending on a patentable claim.

**C. Rejection directed to any or all of Claims 2-11 and 14-19**

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Applicants submit that claims 2-11 and 14-19 are allowable over the cited art for depending on claim 1 which applicants submit is allowable over the cited combination of art. In each case the rejection is based on Clasen in view of additional art. By reference applicants incorporate the facts and arguments presented above regarding Clasen and the combination of art cited along with it. The rejections are shown below to clearly point out that each depends on Clasen.

**The rejections are:**

Claims 6, 7, 10, and 11 under 35 U.S.C. § 103(a) as being unpatentable for obviousness over Clasen, et al (2002/0026810) in view of Hasenzahl, et al (WO01/72419 as represented by US 6,849,570) and Ramsay (4,389,385) as applied to claim 4, in further view of Nordberg (2,236,059).

Claim 9 is rejected under 35 U.S.C. § 103(a) as being unpatentable for obviousness over Clasen, et al (2002/0026810) in view of Hasenzahl, et al (WO01/72419 as represented by US 6,849,570), Ramsay (4,389,385) and Nordberg as applied to claim 2, and in further view of Fujiwara et al. (6,857,262)

Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable for obviousness over Clasen, et al (2002/0026810) in view of Hasenzahl, et al (WO01/72419 as represented by US 6,849,570) and Ramsay (4,389,385) as applied to claim 1, in further view of Seiko Epson (Derwent JP 6225230).

Claims 15 and 16 is rejected under 35 U.S.C. § 103(a) as being unpatentable for obviousness over Clasen, et al (2002/0026810) in view of Hasenzahl, et al (WO01/72419 as represented by US 6,849,570) and Ramsay (4,389,385) as applied to claim 1, in view of Kirkbir, et al (5,473,826).

Claim 17 under is rejected 35 U.S.C. § 103(a) as being unpatentable for obviousness over Clasen, et al (2002/0026810) in view of Hasenzahl, et al (WO01/72419 as represented by US 6,849,570) and Ramsay (4,389,385), and Kirkbir, et al (5,473,826) as applied to claim 16, in further view of Blackwell, et al (5,154,744).

Claim 18 under is rejected 35 U.S.C. § 103(a) as being unpatentable for obviousness over Clasen, et al (2002/0026810) in view of Kirkbir, et al (5,473,826), as applied to claim 16, in further view of Yoldas (4,278,632).

Claims 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable for obviousness over Clasen, et al (2002/0026810) in view of Nordberg (2,236,059), and

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Kirkbir, et al (5,473,826) as applied to claims 7 and 20, in further view of Hrdina, et al  
(Proceeding of SPIE, vol. 5037).

#### 4. Conclusion

Based upon the above amendments, remarks, and papers of record, Applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests reconsideration of the pending claims and a prompt Notice of Allowance thereon

Applicant believes that no extension of time is necessary to make this Reply timely. Should applicant be in error, applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to Walter M. Douglas at 607-974-2431.

7 May 2007  
Date

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| <b>CERTIFICATE OF TRANSMISSION<br/>UNDER 37 C.F.R. § 1.8</b>  |                           |
| I hereby certify that this paper and any papers referred to herein<br>are being transmitted by facsimile to the U.S. Patent and<br>Trademark Office at 571-273-8300 on: |                           |
| <u>7 May 2007</u><br>Date   |                           |
| <u>Walter M. Douglas</u><br>Walter M. Douglas   | <u>7 May 2007</u><br>Date |

Respectfully submitted,  
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